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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,417	04/03/2006	Yoshio Kusano	IIW-050USRCE	9321

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EXAMINER

ESSEX, STEPHAN J

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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06/23/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,417	Applicant(s) KUSANO ET AL.	
	Examiner STEPHAN ESSEX	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 6 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 is/are allowed.
- 6) ☒ Claim(s) 7 is/are rejected.
- 7) ☒ Claim(s) 8-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 1, 2010 has been entered. Claims 1 and 7 were amended.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. In view of Applicant's amendment of claims 1 and 7, the Examiner withdraws the previously set forth rejection of claims 1-4, 7, 8 and 10-12 under 35 U.S.C. 103(a) as being unpatentable over Sugita in view of Suzuki as detailed in the Office Action dated February 1, 2010.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

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granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 7 is rejected under 35 U.S.C. 102(e) as being anticipated by Eshragi et al. (hereinafter "Eshragi") (U.S. Pub. No. 2004/0175605A1).

Regarding claim 7, Eshragi teaches a fibrous fuel cell sub-bundle **20** (fuel cell system) that comprises multiple microfibrinous fuel cells **24** (at least two fuel cell stacks) wound around a hollow tubular humidifying element **22** (humidifier disposed between the two fuel cell stacks such that the humidifier is provided in the space between the two fuel cell stacks) comprising an electrically non-conductive/thermally conductive material. The humidifying element may comprise a non-porous, hydrophilic or microporous, hydrophobic membrane wall that allows water or water vapor to permeate therethrough to humidify the surrounding microfibrinous fuel cells (supplied reaction gases and exhausted reaction gases circulating through the humidifier are directed to flow toward a direction in which the fuel cells are stacked) (see paragraph 52, 57 and 58; figure 2).

Allowable Subject Matter

6. Claims 1-4 are allowed. The following is an examiner's statement of reasons for allowance:

The prior art neither teaches nor suggests a fuel cell system comprising at least two fuel cell stacks; a humidifier configured to humidify at least one of the reaction gases to be supplied to the fuel cell stacks; and a reaction gas supply pipe configured to

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feed the reaction gas from a reaction gas exhaust port of the humidifier to reaction gas supply ports of the fuel cell stacks, wherein the humidifier is disposed between the two fuel cell stacks such that the humidifier is provided in the space separating the two fuel cell stacks; and wherein the reaction gas supply pipe is bifurcated at a bifurcation point into two portions directed toward the two fuel cell stacks respectively, the lengths of the portions from the bifurcation point to the reaction gas supply ports of the two fuel cell stacks being substantially the same.

The closest prior art is Sugita and Eshragi.

Sugita teaches a fuel cell system **10**, comprising a first fuel cell stack **12** and a second fuel cell stack **14** which are arranged in parallel to one another. A piping system **28** is used to supply and discharge a fuel gas and an oxygen-containing gas to the first and second fuel stacks **12** and **14** (configured to receive reaction gases). The piping system **28** includes fuel gas supply tubes **192a** and **192b** (two portions, the lengths being substantially the same) which merge to make communication with a fuel gas supply port **194** (reaction gas supply pipe) (see col. 3, lines 11-14, col. 7, lines 56-57; figure 1). Sugita is silent to a humidifier and is silent to a space separating the first and second fuel cell stacks.

Eshragi teaches a fibrous fuel cell sub-bundle **20** (fuel cell system) that comprises multiple microfibrous fuel cells **24** (at least two fuel cell stacks) wound around a hollow tubular humidifying element **22** (humidifier disposed between the two fuel cell stacks such that the humidifier is provided in the space between the two fuel cell stacks) comprising an electrically non-conductive/thermally conductive material. The

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humidifying element may comprise a non-porous, hydrophilic or microporous, hydrophobic membrane wall that allows water or water vapor to permeate therethrough to humidify the surrounding microfibrous fuel cells (supplied reaction gases and exhausted reaction gases circulating through the humidifier are directed to flow toward a direction in which the fuel cells are stacked) (see paragraph 52, 57 and 58; figure 2). Eshragi is silent to a reaction supply pipe configured to feed the reaction gas from a reaction gas exhaust port of the humidifier to reaction gas supply ports of two of the fuel cell stacks.

7. Claims 8-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art neither teaches nor suggests a fuel cell system comprising at least two fuel cell stacks; a humidifier configured to humidify at least one of the reaction gases to be supplied to the fuel cell stacks; and a reaction gas supply pipe configured to feed the reaction gas from a reaction gas exhaust port of the humidifier to reaction gas supply ports of the fuel cell stacks, wherein the humidifier is disposed between the two fuel cell stacks such that the humidifier is provided in the space separating the two fuel cell stacks; and wherein the fuel cell stacks comprise end plates provided at both ends of the stacked single cells and the humidifier comprises at least two sets of substantially

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cylindrical humidifiers arranged vertically adjacent to one another. The closest prior art is Sugita and Eshragi.

Sugita teaches a fuel cell system **10**, comprising a first fuel cell stack **12** and a second fuel cell stack **14** which are arranged in parallel to one another. A piping system **28** is used to supply and discharge a fuel gas and an oxygen-containing gas to the first and second fuel stacks **12** and **14** (configured to receive reaction gases). The piping system **28** includes fuel gas supply tubes **192a** and **192b** (two portions, the lengths being substantially the same) which merge to make communication with a fuel gas supply port **194** (reaction gas supply pipe) (see col. 3, lines 11-14, col. 7, lines 56-57; figure 1). Sugita is silent to a humidifier and is silent to a space separating the first and second fuel cell stacks.

Eshragi teaches a fibrous fuel cell sub-bundle **20** (fuel cell system) that comprises multiple microfibrous fuel cells **24** (at least two fuel cell stacks) wound around a hollow tubular humidifying element **22** (humidifier disposed between the two fuel cell stacks such that the humidifier is provided in the space between the two fuel cell stacks) comprising an electrically non-conductive/thermally conductive material. The humidifying element may comprise a non-porous, hydrophilic or microporous, hydrophobic membrane wall that allows water or water vapor to permeate therethrough to humidify the surrounding microfibrous fuel cells (supplied reaction gases and exhausted reaction gases circulating through the humidifier are directed to flow toward a direction in which the fuel cells are stacked) (see paragraph 52, 57 and 58; figure 2). Eshragi is silent to a reaction supply pipe configured to feed the reaction gas from a

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reaction gas exhaust port of the humidifier to reaction gas supply ports of two of the fuel cell stacks.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHAN ESSEX whose telephone number is (571) 270-7866. The examiner can normally be reached on Monday - Friday, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SJE

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795